

REMARKS/ARGUMENTS:

Claims 27 and 35 are amended. Support for the amendments to claims 27 and 35 can be found in Fig. 7a and at paragraphs [0104]-[0106] of Applicant's published application. New claims 36-38 are added. Support for new claim 36 can be found in Fig. 5. Support for new claim 37 can be found in Fig. 7a and at paragraph [0104] of Applicant's published application. Support for new claim 38 can be found in Fig. 7a and at paragraphs [0105]-[0106] of Applicant's published application. Claims 27-38 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112:

Claim 35 stands rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Office states,

“Claim 35 requires that ‘the second region be positioned such that the first region is interposed therebetween ...’ but is silent to what the first region is between. Clarification is required.”

In response, Applicant clarified that “the second region comprises a first second region and a second second region” and that “the first region is interposed therebetween the first second region and the second second region.” Withdrawal of this rejection is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103:

Claims 27-30 and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Komori (U.S. Patent No. 6,265,242) and Lindmayer (U.S. Patent No. 4,057,439). Applicant believes that the Office also intended to include Aoyama et al. (U.S. Patent Application Publication No. 2003/0024733) in the rejection, since

the Office cites Aoyama in the reasons for its rejection. Applicant respectfully submits that claims 27-30 and 35 are unpatentable over Aoyama, Komori, and Lindmayer, separately or combined. Applicant respectfully traverses this rejection. Claim 27, as amended, is as follows:

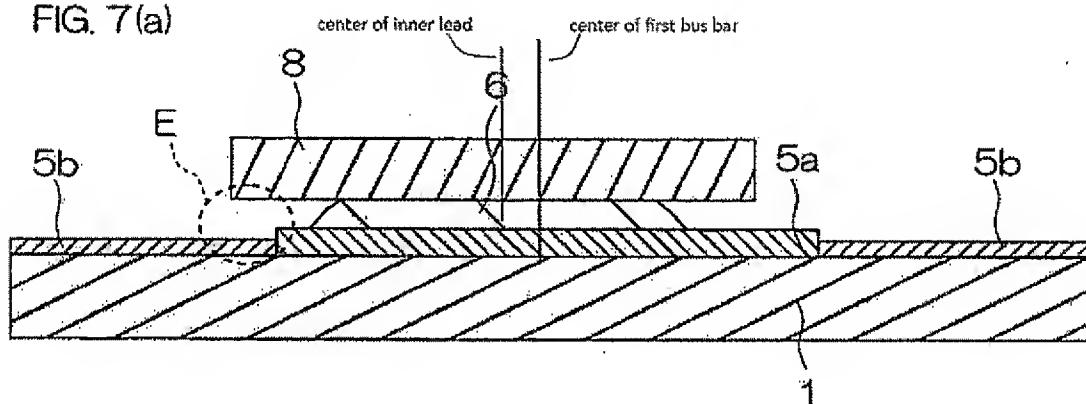
A solar cell module comprising:  
a plurality of solar cell elements each having a front surface and a rear surface;  
a first bus bar electrode provided on the front surface;  
a second bus bar electrode provided on the rear surface;  
each bus bar electrode having a longitudinal direction;  
an inner lead for electrically connecting the first bus bar electrode of a one of the solar cell elements and the second bus bar electrode of an other of the solar cell elements;  
and a filler for sealing the first and the second bus bar electrodes and the inner lead,  
wherein in a plan view of the front surface of the solar cell element, a width of the inner lead along a width direction perpendicular to the longitudinal direction is smaller than one of a width of the first bus bar electrode and a width of the second bus bar electrode along the width direction,  
wherein each of the first and the second bus bar electrodes comprises a first region being connected with the inner lead and a second region including an edge portion along an edge parallel to the longitudinal direction that is nearer to the edge than the first region, and  
wherein the second region is in direct contact with the filler,  
wherein, in plan view, the center of the inner lead does not coincide in the width direction with at least one of the group selected from the center of the first bus bar electrode and the center of the second bus bar electrode.

Applicant respectfully submits that the differences between the subject matter of claim 27 and the cited references are such that the subject matter as a whole would not have been obvious at the time the invention was made to a person of ordinary skill in the art. Applicant submits that the cited references do not teach or suggest a "solar cell module" according to claim 27 "wherein, in plan view, the center of the inner lead does not coincide in the width direction with at least one of

the group selected from the center of the first bus bar electrode and the center of the second bus bar electrode." Nor has the Office cited any other rationale or provided any other reasoned explanation on which an obviousness rejection may be made.

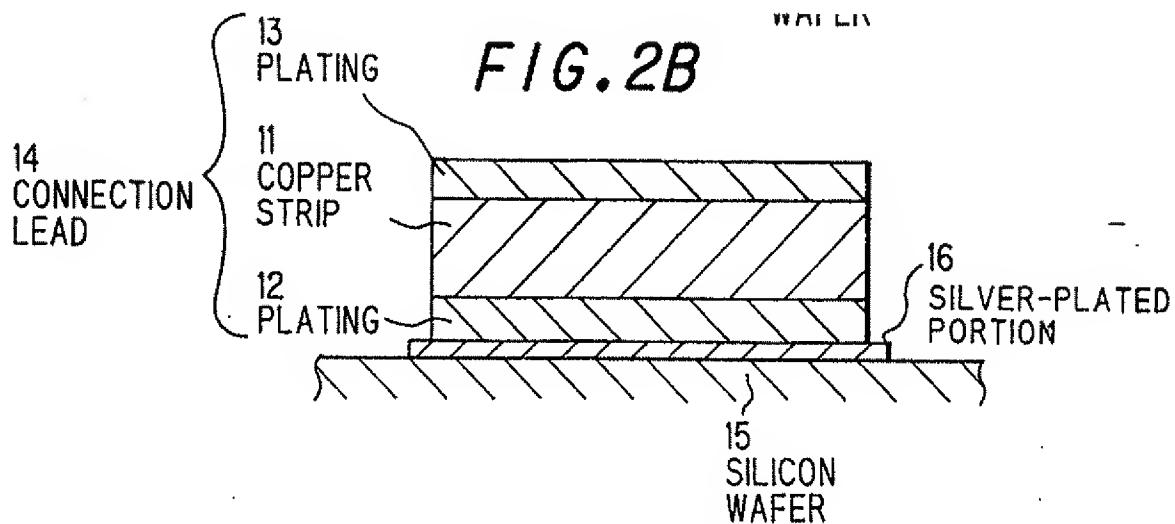
Fig. 7a of the present invention is as follows:

FIG. 7(a)



It is an aspect of the present invention that the inner lead 8 frequently juts out onto the surface finger electrode 5b depending on the positional precision of a device for connecting the inner lead 8 with a solder. (Applicant's published application, paragraph [0105]). As shown in Fig. 7(a), the solder 6 which electrically connects the inner lead 8 and the surface bus bar electrode 5a to each other exists between the inner lead 8 and the surface bus bar electrode 5a. However, the inner lead 8 and the surface finger electrode 5b are not directly connected to each other with a solder. Since the inner lead 8 and the surface finger electrode 5b are not connected to each other with a solder, stress concentrations between the surface finger electrode 5b and the surface of the silicon substrate 1 can be restrained, thereby allowing defects such as micro cracks to occur in the silicon substrate 1. (Applicant's published application, paragraph [0106])

Fig. 2B of Aoyama is as follows:



In Aoyama, the inner lead 11 is positioned in the center of the bus bar 16. Therefore, the respective centers of the inner lead and bus bar coincide.

Komori and Lindmayer cannot remedy the defect of Aoyama and are not relied upon by the Office for such. Instead, the Office cites Komori for teaching a first solar cell with a bus bar on the light receiving side connected serially to the bus bar of a second solar cell located on the non-light receiving side, and Lindmayer for teaching encapsulating serially connected solar cells for their protection from ambient conditions.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 27 obvious, because the cited references fail to teach or suggest each and every claim limitation. Claims 28-30 and 35 depend from claim 27 and therefore, cannot be rendered obvious over the cited references for at least the same reasons as claim 27. Withdrawal of this rejection is thus respectfully requested.

Claims 31 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Aoyama, Komori and Lindmayer as applied to claim 4 [sic] above and further in view of Okada (JP 2000332272). Applicant respectfully traverses this rejection.

Claims 31 and 32 depend from claim 27 and are therefore, patentable over Aoyama, Komori and Lindmayer for at least the same reasons discussed above. Okada cannot remedy the defect of Aoyama, Komori and Lindmayer and is not relied upon by the Office for such. Instead, the Office cites Okada for teaching a method of making a solar cell that uses a solder resist on a portion of the electrode to minimize forming solder bridges.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claims 31 and 32 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Aoyama, Komori and Lindmayer as applied to claim 27 above and further in view of Tanaka (U.S. Patent Application Publication No. 2002/0148499). Applicant respectfully traverses this rejection.

Claim 33 depends from claim 27 and is therefore, patentable over Aoyama, Komori and Lindmayer for at least the same reasons discussed above. Tanaka cannot remedy the defect of Aoyama, Komori and Lindmayer and is not relied upon by the Office for such. Instead, the Office cites Tanaka for teaching a solar cell string which uses a lead free bismuth containing solder because lead is harmful.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 33 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claim 34 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Aoyama, Komori and Lindmayer as applied to claim 27 above and further in view of Lally (U.S. Patent No. 6,198,207) and Kujas (U.S. Patent No. 4,685,604). Applicant respectfully traverses this rejection.

Appl. No. 10/580,982  
Amdt. Dated June 20, 2011  
Reply to Final Office Action of January 21, 2011

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Claim 34 depends from claim 27 and is therefore, patentable over Aoyama, Komori and Lindmayer for at least the same reasons discussed above. Lally and Kujas cannot remedy the defect of Aoyama, Komori and Lindmayer and are not relied upon by the Office for such. Instead, the Office cites Lally for teaching a solder composition for an electronic device which has Sn and a shrinkage coefficient of 0.3% which reduces the residual stresses after solidification of the solder; and Kujas for teaching that severe expansion and contraction of solder joints promote stress and failure.

In light of the foregoing, Applicant respectfully submits that the cited references cannot render claim 34 obvious, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

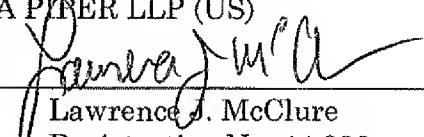
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 595-3107 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIRER LLP (US)

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